

## WHAT IS CLAIMED IS:

1. A decoding apparatus comprising:  
decoding means for decoding encoded data in a method described by a first finite state transition diagram, by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference, said encoded data having been generated by encoding a series of information.
2. The decoding apparatus according to claim 1, wherein the first finite state transition diagram accords with (2, 7) RLL conversion rules.
3. The decoding apparatus according to claim 1, wherein the first finite state transition diagram accords with (1, 7) RLL conversion rules.
4. The decoding apparatus according to claim 1, wherein the intersymbol interference is based on a partial-response equalization system.
5. The decoding apparatus according to claim 1, in which the encoded data is further encoded into LDPC codes or turbo codes, and which further comprises second decoding means for receiving the information decoded by the first decoding means and decoding the LDPC codes or turbo codes.
6. The decoding apparatus according to claim 1, which further comprises reproducing means for reproducing the encoded data generated in the method described by the first finite state transition diagram, and in which the first decoding means uses the trellis corresponding to the second finite state transition diagram, thereby to decode the encoded data that the reproducing means has reproduced from a predetermined recording medium.

7. The decoding apparatus according to claim 1, which further comprises receiving means for receiving the encoded data generated in the method described by the first finite state transition diagram and transmitted via a predetermined communication path, and in which the first decoding means decodes the encoded data received by the receiving means, by using the trellis corresponding to the second finite state transition diagram.

8. A decoding method comprising the steps of:  
acquiring encoded data generated by encoding a series of information in a method described by a first finite state transition diagram; and

decoding the encoded data acquired, by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference.

9. A program storage medium storing a computer-readable program that describes the steps of:

acquiring encoded data generated by encoding a series of information in a method described by a first finite state transition diagram; and

decoding the encoded data acquired, by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference.

10. A program describing the steps of:  
acquiring encoded data generated by encoding a series of information in a method described by a first finite state transition diagram; and

decoding the encoded data acquired, by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference.

11. A recording/reproducing apparatus comprising:

encoding means for encoding a series of information in a method described by a first finite state transition diagram;

recording/reproducing means for recording and reproducing data encoded by the encoding means, in and from a predetermined recording medium; and

decoding means for decoding the encoded data reproduced by the recording/reproducing means, by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference.